

REMARKS

By this amendment, claims 1, 4, 5, 11, 20-23, 29, and 32-34 have been amended. Claims 2-3, 24-25, 37 and 39-43 have been cancelled. New claims 44-53 have been added. Support for the claim amendments and new claims is found in the original claims.

I. Summary of Office Action

- a. Claim 32 was objected to for an informality in the chemical name.
- b. Claims 1-2, 4, 7-9, 12-15, 17-19, 31, 37 and 41-43 are rejected under 35 U.S.C. §102(b) as allegedly anticipated by Ahlstrand (US 2003/0149162).
- c. Claims 1-2, 4, 7-9, 12-15, 17-19, 31, 37 and 41-43 are rejected under 35 U.S.C. §103 as allegedly obvious over Ahlstrand, in view of Laiho et al. (US 2006/0142495).
- d. Claims 5, 22-23, and 39-40 stand rejected under 35 U.S.C. §103 as allegedly obvious over Ahlstrand, in view of Sakamoto et al. (U.S. 5,345,926).
- e. Claims 6, 10, 224-30 and 34-36 stand rejected under 35 U.S.C. §103 as allegedly obvious over Ahlstrand, in view of Van Dun et al. (U.S. 7,129,296).
- f. Claim 11 is rejected under 35 U.S.C. §103 as allegedly obvious over Ahlstrand.
- g. Claim 16 is rejected under 35 U.S.C. §103 as allegedly obvious over Ahlstrand, in view of Myhre (US 2006/0014897)
- h. Claims 20-21 are rejected under 35 U.S.C. §103 as allegedly obvious over Ahlstrand, in view of Myhre.
- i. Claim 32 is rejected under 35 U.S.C. §103 as allegedly obvious over Ahlstrand, in view of Garoff et al. (U.S. 5,770,540).
- j. Claim 33 is rejected 35 U.S.C. §103 as allegedly obvious over Ahlstrand, in view of Casey et al. (U.S. 6,110,552).
- k. Claim 38 is rejected 35 U.S.C. §103 as allegedly obvious over Ahlstrand, in view of Myhre.

II. Response to Office Action

a. Claim 32 was objected to for an informality in the chemical name. By this amendment, claim 32 is amended as the Examiner suggested. Withdrawal of this rejection is respectfully requested.

b. Claims 1-2, 4, 7-9, 12-15, 17-19, 31, 37 and 41-43 are rejected under 35 U.S.C. §102(b) as allegedly anticipated by Ahlstrand (US 2003/0149162). The Examiner contends that Ahlstrand discloses a bimodal polymer composition comprising an ethylene homopolymer or an ethylene alpha-olefin copolymer, comprising 30-70 wt. % of a low molecular weight ethylene polymer and 70-30 wt. % of a high molecular weight ethylene polymer or copolymer, and a nucleating agent, wherein the low molecular weight polymer has a weight average molecular weight of about 5,000-50,000 g/mol, and the bimodal polymer has a density of 930-965 kg/m³, and may contain talc.

This rejection is respectfully traversed. By this amendment, claim 1 has been amended to recite that polymer A is a **wax** having a weight average molecular weight less than 10,000 g/mol. Ahlstrand, while disclosing a low molecular weight ethylene polymer, does not disclose that the polymer is a wax. Moreover, Ahlstrand's polymer composition is used to produce **transmission pipes** having increased pressure resistance, whereas the presently claimed polymer is used to produce cellophane, aluminum foil, freezer wrap paper and fabrics. In other words, the films produced from the presently claimed polymer composition must be malleable at normal ambient temperatures (hence the presence of the wax) which cannot be a property of a transmission pipe. This is evidenced by the difference in the melt flow rates between Ahlstrand and the present polymer. Ahlstrand's polymers have a very low MFR₅ of less than 1 g/mol (Examples 1 to 3), while the polymers of the present invention have an MFR₅ of around 25-30 g/mol (see paragraph 00048 and claim 13).

In addition, Ahlstrand attributes the improved pressure resistance to the presence of a small amount nucleating agent in the composition. Nucleating agents improve stiffness (flexural modulus). Ahlstrand **does not** attribute the improvements to any presence of a wax—Ahlstrand does not even disclose a wax. Thus, one of ordinary skill

in the art would not have looked to Ahlstrand when seeking a polymer composition for use in film extrusion for packaging.

Because it is clear that Ahlstrand does not contemplate use of a low molecular weight wax in the polymer composition as presently claimed, withdrawal of this rejection is respectfully requested.

c. **Claims 1-2, 4, 7-9, 12-15, 17-19, 31, 37 and 41-43 are rejected under 35 U.S.C. §103 as allegedly obvious over Ahlstrand, in view of Laiho et al. (US 2006/0142495).** The Examiner contends that, although Ahlstrand is silent on the specific polyolefin to use, Laiho discloses that polypropylene, low density polyethylene, and a bimodal high density polyethylene to provide a composition with improved processability, particularly suitable for extrusion coating.

This rejection is respectfully traversed. Claim 1 as amended specifies that polymer A is a wax, which is not disclosed in either Ahlstrand or Laiho. Thus, no combination can render the present claims obvious. Moreover, as discussed above, Ahlstrand's polymer is used to improve pressure resistance for water and gas transmission pipes. Because Laiho discloses polymers used for extrusion coating and not the manufacture of pipes, these references are incompatible and their combination is improper. Withdrawal of this rejection is respectfully requested.

d. **Claims 5, 22-23, and 39-40 stand rejected under 35 U.S.C. §103 as allegedly obvious over Ahlstrand, in view of Sakamoto et al. (U.S. 5,346,926).** The Examiner contends that Ahlstrand is silent on the specific wax to be used but that Sakamoto et al. disclose use of 1 part by weight of a polyethylene wax having an average molecular weight of 3800 to improve compatibility of the mixture (Example 1). The Examiner contends that such a benefit would have been obvious to one of ordinary skill in the art, thus providing the motivation to use a polyethylene wax.

It is believed the Examiner intended to include claim 4 and not claim 5 in the rejection, as claim 4 recites the nature of the wax and not claim 5. Also, claims 39 and 40 are cancelled by this amendment thereby mooted the rejection as to these claims.

This rejection is respectfully traversed as to amended claim 1, 4, 22 and 23. Ahlstrand does not disclose use of a wax in the polymer composition used to improve pressure resistance of water and gas transmission pipes, as explained in section (b) above. Sakamoto actually discloses that the inclusion of a polyethylene wax *in addition* to a low-density polyethylene and a high-density polyethylene for use as an expandable resin in electrical wires. The inclusion of the wax makes the expansion ratio greater than 60%.

Because neither Ahlstrand nor the present invention disclose the desirability of increasing the expansion ratio of electrical wires, Applicant disagrees that one of ordinary skill in the art would have had a reason to specifically select the polyethylene wax component from Sakamoto for use in Ahlstrand's polymer composition, much less arrive at the presently claimed polymer composition that is suitable to make extrusion-coated films for food packaging. One of ordinary skill in the art certainly would not have combined Ahlstrand, whose polymer composition is used to increase resistance of transmission pipes, with Sakamoto, who's polymer resin is used to increase the expansion of ratio of small electrical wires. The Examiner has provided no reason why one of ordinary skill in the art would combine an isolated element (polyethylene wax) from a non-analogous resin (Sakamoto) for use in a polymer composition that is specifically designed for gas transmission pipes. Absent a showing by the Examiner that one of skill in the art have recognized the desirability of increase the expansion ratio of gas transmission pipes, the combination is improper. The references are inapposite with each other.

Moreover, even improper combination of Ahlstrand and Sakamoto does not teach the presently claimed polymer composition, absent an articulated reason why one of ordinary skill in the art would have looked to Ahlstrand's polymer composition, and/or Sakamoto's polymer resin, when seeking to make a polymer composition with reduced water vapor transmission, as presently claimed. As discussed above, because Ahlstrand is entirely incompatible with the presently claimed composition, no such reason exists.

Withdrawal of this rejection is respectfully requested.

e. **Claims 6, 10, 24-30 and 34-36 stand rejected under 35 U.S.C. §103 as allegedly obvious over Ahlstrand, in view of Van Dun et al. (U.S. 7,129,296).** The Examiner contends that, although Ahlstrand is silent on the density of the lower molecular weight polymer, Van Dun discloses a polymer composition having a low molecular weight ethylene component having a density of lower than 945 g/m^3 .

This rejection is respectfully traversed. Claims 24 and 25 are cancelled by this amendment, mooted this rejection. Van Dun discloses a bimodal polyethylene composition comprising a low molecular weight ethylene in a range of 10,000 to 40,000 g/mol, and a high molecular weight ethylene in a range of 100,000 to 600,000 g/mol, which exhibits improved durability and tensile cracking resistance (see claim 1, col. 1, l. 56; col. 2, l. 51; col. 6, ll. 1-2 and 33-34; and col. 20, l. 47). The compositions of Van Dun, like Ahlstrand, are also suitable to make water and gas transmission pipes. Contrary to the Examiner's contention, Van Dun does not disclose polymers having a density of below 945 g/m^3 as presently claimed. Van Dun discloses that the low density polymer has a density of greater than 0.960 g/cm^3 , which is equivalent to greater than 960 g/m^3 (col. 6, ll. 11-14).

Lastly, because neither Ahlstrand nor Van Dun disclose that the low density polymer is a wax, as required by the present claims, the combination of references cannot render the present claims obvious.

Accordingly, withdrawal of this rejection is respectfully requested.

f. **Claim 11 is rejected under 35 U.S.C. §103 as allegedly obvious over Ahlstrand.** The Examiner contends that, although Ahlstrand does not disclose the amount of filler, such amounts are routine optimizations where the amount is a result-effective variable.

This rejection is respectfully traversed. Neither Ahlstrand nor the present invention provides any indication that the amount of filler is a result-effective variable as the Examiner contends. Ahlstrand contends that it is the nucleating agent in the composition that increase the crystallinity of the disclosed polymer and provides the

advantageous effects, in small amounts of 1 to 1500 ppm, **not** the filler. From the one sentence disclosure in Ahlstrand that the compositions “may also contain other additives known in the art, for instance stabilizers such as hindered phenols, phosphates, phosphites and phosphonites, pigments such as carbon black, ultramarine blue and titanium dioxide, additives such as clay, talc, calcium carbonate, calcium stearate, and zinc stearate, UV absorbers, antistatic additives like, there is no reason why one of ordinary skill in the art would add a filler, much less in the claimed amounts.

g. Claim 16 is rejected under 35 U.S.C. §103 as allegedly obvious over Ahlstrand, in view of Myhre (US 2006/0014897). The Examiner contends that, while Ahlstrand does not disclose the particle size of the filler, Myhre discloses the claimed particle size. The Examiner also contends that it is the filler that causes the breathability of the film to allow vapor and gas transmission (paragraph 0039 and 0040 of Myhre).

This rejection is respectfully traversed. Applicant refers the Examiner’s attention to the previous response filed August 27, 2009 for arguments why a skilled artisan would not have had any reason to combine Ahlstrand, which discloses a polymer for use in water and gas transmission pipes, with that of Myhre, who discloses polymers for use in breathable films that permit vapor and gas transmission. The references are inapposite. Moreover, one of ordinary skill in the art would not have looked to Myhre when seeking a filler composition and amount because the present invention discloses polymers for use to produce films **with reduced water vapor transmission**. This is directly contrary to what is taught by Myhre in paragraphs [0031] and [0040], where Myhre states:

Very high water vapour transmission rates can be reached [with the films prepared by the disclosed polymer compositions]. [0031; emphasis added].

and

It is the present understanding that when the composition is extruded to a film, and the film is stretched, micropores are formed adjacent to the filler particles. These micropores

allow the passage of gasses and vapors through the film.
[0040; emphasis added].

Thus, Myhre teaches away from the presently claimed polymer composition.

Lastly, because neither Ahlstrand nor Myhre disclose that the low density polymer is a wax, as required by the present claims, the combination of references cannot render the present claims obvious. Withdrawal of this rejection is respectfully requested.

h. Claims 20-21 are rejected under 35 U.S.C. §103 as allegedly obvious over Ahlstrand, in view of Myhre. The Examiner contends that Ahlstrand is silent on the identity and amount of the comonomer unit, but that Myhre discloses that a bimodal polyethylene composition comprising 0.6 mol % of 1-butene.

This rejection is respectfully traversed. Applicant refers the Examiner's attention to the previous response filed August 27, 2009 for arguments why a skilled artisan would not have had any reason to combine Ahlstrand, which discloses a polymer for use in water and gas transmission pipes, with that of Myhre, who discloses polymers for use in breathable films that permit vapor and gas transmission. The references are inapposite.

Moreover, for the reasons in section (g) above, one of ordinary skill in the art would not have looked to Myhre when seeking to make films having reduced water vapor transmission, as the presently claimed polymer composition is used.

Lastly, because neither Ahlstrand nor Myhre disclose that the low density polymer is a wax, as required by the present claims, the combination of references cannot render the present claims obvious.

Withdrawal of this rejection is respectfully requested.

i. Claim 32 is rejected under 35 U.S.C. §103 as allegedly obvious over Ahlstrand, in view of Garoff et al. (U.S. 5,770,540). The Examiner contends that Ahlstrand does not disclose the specific process recited in claim 32, but Garoff discloses

a high activity procatalyst as claimed, which has high activity for the production of ethylene polymers.

The deficiencies of Ahlstrand have been disclosed above with respect to the claimed low molecular weight polymer. Garoff does not remedy these deficiencies and does not disclose the claimed polymer A.

Withdrawal of this rejection is respectfully requested.

j. Claim 33 is rejected 35 U.S.C. §103 as allegedly obvious over Ahlstrand, in view of Casey et al. (U.S. 6,110,552). The Examiner contends that, while Ahlstrand is silent on the specific film coating line to be used, Casey discloses a composite release liner comprising a paper substrate and a polymer base layer applied on the substrate to make a multilayer material for pressure sensitive adhesive labels. The Examiner contends that the combination therefore renders claim 33 obvious.

This rejection is respectfully traversed. It is unclear how the disclosure of a **release liner** for use adhesive labels, can render obvious a claim reciting a process for coating films using a **film coating line**, which is a **machine** for coating films. Moreover, The deficiencies of Ahlstrand have been disclosed above with respect to the claimed low molecular weight polymer. Casey does not remedy these deficiencies and does not disclose the claimed polymer A.

k. Claim 38 is rejected 35 U.S.C. §103 as allegedly obvious over Ahlstrand, in view of Myhre. The Examiner contends that although Ahlstrand is silent on the specific film, Myhre discloses a bimodal polyethylene composition used for breathable films such as cast films.

This rejection is respectfully traversed. Ahlstrand, which discloses a polymer composition for increasing pressure resistance in *water and gas transmission pipes*, and Myhre discloses polymer compositions to make *breathable films*. The references are inapposite and incompatible with each other. Any disclosure in Myhre would not be used in the compositions of Ahlstrand. Moreover, because Myhre teaches away from the

presently claimed polymer compositions, which are used to make films with reduced water vapor transmission rates, in stark contrast to Myhre's breathable films having high vapor transmission, no combination of Ahlstrand and Myhre can render the present claims obvious.

Withdrawal of this rejection is respectfully requested.

III. Conclusion

In view of the foregoing, withdrawal of the rejections of record and allowance of the claims is respectfully requested. If the Examiner wishes to discuss this case further, she may contact the undersigned at 202-835-7589.

EXCEPT for issue fees payable under 37 C.F.R. § 1.18, the Director is hereby authorized by this paper to charge any additional fees during the entire pendency of this application, including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 13-3250, reference No. 37488.01300US. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F. R. § 1.136(a)(3).

Respectfully submitted,

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